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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,898	01/07/2004	Shosuke Endoh	247409US2	3795

22850 7590 01/04/2006

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EXAMINER	
MACARTHUR, SYLVIA	

ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 01/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,898	ENDOH ET AL.	
	Examiner	Art Unit	
	Sylvia R. MacArthur	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Steger 2005/0056622.

Steger teaches an apparatus for the compensation of the edge ring wear in a plasma processing chamber.

The apparatus comprises a plasma processing chamber, a susceptor 112, a ring member 102, and a lower ring body 108.

3. Claims 1,5, 10, 11, 13, 14, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Hoffman 2004/0159287.

Claim 1: Hoffman teaches a plasma reactor comprising a chamber 100, a susceptor 105, a ring member115, and a lower ring120.

Claims 5 and 13: Both the wafer and the ring are described as made of semiconductor.

Claim 10: Product by process limitations the how the ring was formed does not further limit the claim nor does it receive patentable weight, see [0092]

Claims 11 and 19 are a matter of an intended use no structural limitation are not given patentable weight.

Claim 14: See element 20

4. Claims 1,5, 10-14, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Dhindsa et al (US 6,391,787).

Dhindsa et al teaches a stepped upper electrode for plasma processing uniformity.

Dhindsa et al teaches a plasma processing apparatus comprising:

a plasma processing chamber (see col. 7 line 16-20);

a susceptor 19 installed within the plasma processing

chamber for mounting thereon a substrate to be processed;

a ring member 17 disposed to surround periphery of the

substrate to be processed with a gap therebetween; and

a lower ring body 18placed below the substrate be

processed and the ring member.

Claims 5 and 13: Both the wafer and the ring are described as made of silicon see col.4 line 48 and col. 7 lines 1-12.

Claim 10: Product by process limitations the how the ring was formed does not further limit the claim nor does it receive patentable weight.

Claims 11 and 19 are a matter of an intended use no structural limitation are not given patentable weight.
Claim 12: Electrostatic chuck 16
Claim 14: Fig. 1B, 1C and 2A.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2-8, 15-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al.

Claims 2-4 and 15-17: The dimensions of the ring 115 is 10 (ID) 13 (OD) inches according to the specification page 14 the impedance is related to the thickness.

Claim 6-8 and 20 The teachings of Hoffman were discussed above.

Hoffman fails to teach the thickness of the substrate as being related to the impedance However, In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

The motivation to provide the dimensions of Hoffman et al within the ranges of claims 6-8 is that mete the optimal physical parameters of protection to the wafer for processing and provide the desired impedance.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the dimensions of the ring member within the ranges of claims 6-8 as a matter of optimization.

7. Claims 2-8, 15-17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa et al.

Claims 2-4 and 15-17: The dimensions of the ring of Dhindsa et al were discussed in col. 8 of Dhindsa et al and according to the specification page 14 of the present invention, the impedance is related to the thickness.

Claim 6-8 and 20 The teachings of Dhindsa et al were discussed above.

Dhindsa et al fails to teach the thickness of the substrate as being related to the impedance However, In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

The motivation to provide the dimensions of Dhindsa et al within the ranges of claims 6-8 is that mete the optimal physical parameters of protection to the wafer for processing and provide the desired impedance.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the dimensions of the ring member within the ranges of claims 6-8 as a matter of optimization.

8. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman or Dhindsa et al in view of Tong et al (US 2004/0083975).

The teachings of Hoffman et al or Dhindsa et al were discussed above.

Hoffman et al and Dhindsa et al fail to teach the materials of construction as discussed in claims 9 and 18 of the claimed invention.

Tong et al teaches a hot edge ring 108 surrounding an electrostatic chuck wherein the chuck is made of such materials as SiC and silicon.

Tong et al teaches that the material of construction of the edge ring the degree f coupling through the plasma can be tailored to provide a desired localized "edge" etch rate at the outer portion of the substrate being processed, see [0026 of Tong et al].

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to construct the ring of Hoffman et al or Dhindsa et al with the materials disclosed by Tong et al.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 9 a.m. and 3 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sylvia R MacArthur
Patent Examiner
Art Unit 1763

December 27, 2005